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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT PAPER NUMBER

1763

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,671

Applicant(s)

SCHLOTTMANN, OLE

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2, 4-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6-9, 13, and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colpo et al, US Patent 6,682,630 B1, in view of Nguyen, US Patent 6,565,661 B1.

Colpo et al teaches a showerhead that includes: a gas inlet 51 leading to a gas reservoir 48; a faceplate 38 fitted between the reservoir and a processing space 50 including orifices 42, 44; and a quartz, glass, ceramic or polymer sheet 80 having a plurality of orifices and sealed to the faceplate between the faceplate and processing space. (Figures 2A-2C, column 5 line 55 through column 9 line 43)

Colpo et al differs from the present invention in that Colpo et al does not teach that the orifice of the sheet is smaller than the orifice of the faceplate, or the size of the diameter of the orifice, or thickness of the sheet.

Nguyen teaches a showerhead that includes a large diameter orifice combined with a smaller diameter orifice to control the pressure drop across the showerhead. The smaller orifice has a diameter of 0.1 mm to 2 mm and a thickness of 0.5 mm to 5 mm. (Entire document)

The motivation for making the size of the orifice in the sheet of Colpo et al

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smaller than the orifice of the faceplate is to control the pressure drop between the reservoir and the processing space as taught by Nguyen.

The motivation for making the diameter of the orifice 0.15 mm, or thickness of the sheet less than 1 mm is to optimize the size of the orifice and thickness of the sheet of Colpo et al as taught by Nguyen. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the orifice in the sheet of Colpo et al smaller than the orifice of the faceplate and to optimize the size of the sheet as taught by Nguyen.

3. Claims 1, 4, 5, 7-9, and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doppelhammer, US Patent 6,533,867 B2, in view of Nguyen, US Patent 6,565,661 B1.

Doppelhammer teaches a showerhead that includes: a gas inlet 25 leading to a gas reservoir 49a-c; a faceplate 46 fitted between the reservoir and a processing space including orifices; and a metal sheet 45 having a plurality of orifices attached to the face plate between the faceplate and reservoir via disk 42. Some of the orifices of the faceplate are aligned with the orifices of the sheet, and some are not. The faceplate 46

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can also be a sheet. (Entire document)

Doppelhammer differs from the present invention in that Doppelhammer does not teach that the orifice of the sheet is smaller than the orifice of the faceplate, the material of construction of the sheet, or the size of the diameter of the orifice, or thickness of the sheet.

Nguyen teaches a showerhead that includes a large diameter orifice combined with a smaller diameter orifice to control the pressure drop across the showerhead. The smaller orifice has a diameter of 0.1 mm to 2 mm and a thickness of 0.5 mm to 5 mm. (Entire document)

The selection of a material of construction is an obvious design choice, and one of ordinary skill in the art would be able to choose an appropriate material based on the processing and structural requirements. All of the claimed materials are commonly used in the showerhead art.

The motivation for making the size of the orifice in the sheet of Doppelhammer smaller than the orifice of the faceplate is to control the pressure drop between the reservoir and the processing space as taught by Nguyen.

The motivation for making the diameter of the orifice 0.15 mm, or thickness of the sheet less than 1 mm is to optimize the size of the orifice and thickness of the sheet of Doppelhammer as taught by Nguyen. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the

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claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

The motivation for selecting a specific material of construction is to provide a material from which the showerhead can be made.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the orifice in the sheet of Doppelhammer smaller than the orifice of the faceplate, to optimize the size of the sheet as taught by Nguyen, and to select a specific material from which to make the apparatus of Doppelhammer.

4. Claims 10 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Doppelhammer and Nguyen as applied to claims 1, 4, 5, 7-9, and 12-21 above, and further in view of Arami et al, US Patent 5,938,850.

Doppelhammer and Nguyen differ from the present invention in that they do not teach a dividing plate with orifices and adjacent to the sheet that divides the reservoir into two reservoirs.

Arami et al teaches a showerhead 44 having two dividing plates 50 each having orifices 52 adjacent each other. (Figure 1)

The motivation for adding the dividing plate of Arami et al to the apparatus of Doppelhammer and Nguyen is to further diffuse the gas supplied to the showerhead and increase the gas distribution uniformity as taught by Arami et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a dividing plate of Arami et al to the apparatus of

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Doppelhammer and Nguyen.

Response to Arguments

5. Applicant's arguments filed December 1, 2005 have been fully considered but they are not persuasive.

In regard to the argument that "one of ordinary skill in clearly would not consider replacing a contamination-preventing sheet with the gas-distributing shower head plate of Nguyen", the Examiner agrees. However, that is not the combination proposed. The combination proposed is to make the gas outlets in the contamination-preventing sheet of Colpo et al smaller than the pipes of Colpo et al as taught by Nguyen. No suggestion was made in the rejection to replace the sheet of Colpo et al.

In regard to the arguments that the delivery tube/pipes of Colpo et al are welded, the Examiner disagrees. First, the welded connection is not part of the rejection because it belongs to a second embodiment disclose by Colpo et al. The rejection is based only on the first embodiment. Second, even if the pipes were welded onto the sheet, it would not limit the size of the holes in the sheet. The pipes could be welded onto the back of the shield to provide a large diameter hole connected to a small diameter hole in the shield as taught by Nguyen.

In regard to the arguments that there is a gap between the surface of the faceplate 38 and the shield 80, the Examiner disagrees. The space between the faceplate 38 and the shield 80 is not part of the rejection because it belongs to a second embodiment disclose by Colpo et al. The rejection is based only on the first embodiment.

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In regard to the argument that Doppelhammer does not teach that the "sheet is attached to a surface of the faceplate", the Examiner disagrees. The term "attached" is a broad term and includes intervening parts. The shield 45 is attached to the faceplate 46 via disk 42.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
2/20/06